



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
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EPA Region 5 Records Ctr.



286518

April 15, 2003

REPLY TO THE ATTENTION OF

SR-6J

Via Fax and Certified Mail
Return Receipt Requested

Mr. Roy O. Ball
740 Waukegan Road, Suite 401
Deerfield, IL 60015
Fax: 847-444-9420

RE: Envirochem Site, Zionsville, IN
Consent Decree, Civil Action No. IP 83-1419-C-M/S. Additional Work

Dear Mr. Ball:

Thank you for providing Environ's proposed Attachment Z-1 to revised exhibit A of the Consent Decree. The United States Environmental Protection Agency and the Indiana Department of Environmental Management have reviewed the document. The Agencies' comments are enclosed with this letter for your review.

Please let me know if you would like to arrange for a conference call or meeting to discuss this matter.

Sincerely,

Matthew J. Ohl
Remedial Project Manager

Enclosure

cc: Norman W. Bernstein, Trustee
Peter M. Racher, Trustee
Tom Krueger, U.S. EPA
Mike Habeck, IDEM
Tim Harrison, CH2M Hill

addresses for cc.'s

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Enclosure

The following comments pertain to Environ's *Attachment Z-1 to Revised Exhibit A*, dated February 2003.

The additional work proposed in this attachment is intended to prevent volatile organic compounds (VOCs) from reaching Unnamed Ditch and Finley Creek by cutting off the contaminated groundwater in the upper till with a barrier wall and extraction of contaminated water and vapors. However, with the current data, there is not enough evidence to show that contamination is present only in the upper till unit and will not enter the creek system via the sand and gravel aquifer. There are no sand and gravel wells in the source areas, only around the margin. Deep wells are particularly needed near T-6 and downgradient of S-4A. The contaminated deep wells, S-4A and MW-13, are downgradient of the barrier wall and will not even be addressed by this plan.

The plan states that on-site till wells will be abandoned. Some of these wells are installed through the cap. There is no evidence that the presence of these wells is detrimental to the remedy. The cap has established vegetation and appears to be functioning properly. Abandoning the wells in the cap footprint will cause severe damage to the cap and may prove detrimental to the final remedy. As was previously discussed with the consultant, the wells should be left as is until U.S. EPA and IDEM agree the remedy has met all the requirements and goals of the Record of Decision. Once this point is reached, the wells can be grouted and sealed without damage to the cap.

There is no provision for extending the cap to cover the southern pad area. Extending the cap would reduce infiltration of precipitation and may significantly reduce the migration of soil contamination. It may also reduce the amount of groundwater collected in the trench system.

The first attempt to remediate shallow VOC contamination in the northern part of the site using soil vapor extraction (SVE) failed to achieve cleanup goals. The remediation met with difficulty because the hydrologic properties and nature of the shallow soils were not well understood. Additional work around the site has shown much more diverse conditions than anticipated, including sand stringers and large thicknesses of fill. A pilot test of the remediation system is advisable. There is a significant potential that the formation can continually produce much more water than the on-site treatment plant can handle, and that the trench may not effectively de-water the site. If the formation cannot be effectively de-watered, then this proposal is no better than the collection trench outlined in the Additional Work provision.

There are repeated references to the proposed system as an SVE system. The proposed system appears to be a dual phase extraction (DPE) system, and this should be clarified.

The failure of the initial remedy to meet cleanup standards and significant long term response activities proposed in Attachment Z-1 will require considerable funding from U.S. EPA that

was not contemplated at the time oversight costs were capped in the Consent Decree. Please give some thought to resolving this issue.

Page 1, Paragraph 3: The reference to the “Augmented SVE System” may be misleading and should be corrected to clarify that the work described is being performed as Additional Work under the consent decree.

Page 1, Item B and Page 2, Item D: The description of Phase I Long Term Monitoring states that at the end of the 5-year monitoring period, the Site will enter the Indiana Voluntary Remediation Program. Also, the description of the Closure Phase describes creation of an escrow account to pay for an additional 10 years of Long Term Monitoring. These concepts were proposed by the Trustees at a meeting with U.S. EPA and IDEM, however the agencies are only considering them and have not approved them. It is unlikely that the Envirochem site would be permitted to enter the Voluntary Remediation Program. Please also note that the Trustees will remain liable for further contingent actions. While U.S. EPA and IDEM have explored “cash out” options for other sites, there is currently insufficient detail provided to consider this proposal.

Page 3, Section 2.0: The bulleted sequence of activities is missing at least two major items. Please include installation of the barrier wall and the abandonment of the other (offsite) wells in this list.

Page 3, Section 2.0: Capping of the Southern Concrete Pad Area excavation based on exit sampling results compared to Indiana RCRA clean closure criteria has not been addressed in this document. Will that issue be addressed separately?

Page 3, first bullet: Remove the word “west” for consistency with Section 2.2 on page 5.

Page 3, fifth bullet: The first word should be “Collection”.

Page 4, Section 2.1, Well Abandonment: The Trustees have proposed an extensive program of well abandonment. Given the conditions expected at the end of Phase I, future contaminant concentrations in subsurface water may be less than current concentrations. However, given the uncertainty of the mass of contamination remaining in the onsite till and the potential variability (seasonal or otherwise) in hydraulic gradients between the till and sand zones, further monitoring of the till and sand and gravel is appropriate. If they must be removed to address the concern about short-circuiting the extraction system, the work plan should include the replacement of the wells after operation of the system has been completed.

Section 2.2.1: The contractor states that SVE will remediate semi-volatile organic compounds (SVOCs), and because it “dries any sand lenses, it is also effective in treating subsurface moisture in the till.” There are several problems with these assertions. First, vapor extraction is not effective at removing semi-volatiles from the soil and groundwater. Secondly, SVE cannot remove significant quantities of water from the soil, as the vacuum pressure is not high enough. Finally, how drying sand lenses will affect moisture in the till is not explained.

Section 2.2.2, paragraph 2: The contractor has proposed placing four dual phase extraction wells between trenches 3 and 4 because of the “irregular geology of this area and the limited

depth of the clay.” These wells will only extend through the upper clay unit. It is unclear why the contractor wishes to place wells here. The depth of the extraction trench can easily be reduced in this area. The contractor should provide technical justification for the placement of wells rather than a trench.

Section 2.2.2, Page 6, footnotes 6 and 7: Please clarify that the trench system modifications and final locations of the extraction system will be subject to the approval of U.S. EPA.

Page 9, Section 2.2.4, second sentence: Change the word “southeast” to “southwest”.

Section 2.3: This section describes the remediation of two separate areas. These areas are adjacent to the dual phase extraction trenches. Why is it necessary to address these areas separately? Why is the trench system unable to address the contamination in these areas?

Section 2.3.1, Page 11, First Paragraph: Please clarify that any proposed modifications will be subject to U.S. EPA approval.

Section 2.4: The contractor should clarify how well S-4A was damaged. The well has been sampled and gauged since 1999, which is when the contractor states it was damaged, so it is unclear why it needs to be replaced. It is the most significantly contaminated sand and gravel well. If it needs to be replaced, it should be replaced by a well within 10 feet.

Section 3.1: According to this section, the contractor plans only to monitor vapor from the remedial system. Experience with the on-site SVE system has shown that achievement of soil vapor goals does not correlate well with achievement of groundwater cleanup objectives. The system should not be shut down unless the vapor and groundwater cleanup goals are met. If the vapors meet the criteria in Section 3.1.2, a water sample should be taken. If the water sample meets the cleanup criteria, system shutdown can be considered. If the water sample does not meet the cleanup criteria, the system should remain active.

Page 13, Section 3.1.1: It is stated that the SVE vapor sampling methods will comply with the April 28, 1997 FSP. Due to physical constraints, this sampling methodology was modified by Versar (see Versar October 31, 2000 letter to U.S. EPA and IDEM) and approved by U.S. EPA (Michael McAteer e-mail to Versar and Ron Hutchens/Environ on November 21, 2000). This modification should be incorporated into the sample collection approach.

Page 13, Section 3.1.1: Daily, weekly and biweekly vapor monitoring will be done during SVE trench operation. It is unclear which samples will be monitored using the in-line analyzer and which will be sent offsite for analysis. Use of the in-line analyzer may be acceptable for monitoring of vapor trends, however, offsite analysis by a laboratory will be required for compliance documentation using methods specified in the approved FSP and QAPP.

It should be noted that use of the in-line analyzer was problematic during previous SVE operation (based on discussions between CH2M HILL and Versar during site visits). It is recommended that an initial correlation be developed between the in-line analyzer results and samples sent offsite for analysis to ensure that valid results can be obtained.

Section 3.2: Please analyze the vapor for the initial list of compounds rather than starting with a reduced list based upon the 1999-2000 analysis.

Sections 3.3 and 3.4: The contractor has proposed semi-annual surface and groundwater monitoring once the extraction trench is in place. Please include quarterly monitoring for at least five years in order to have adequate data for remedy assessment and statistical analysis. Please clarify that U.S. EPA may also require additional samples to be collected. The list of contaminants of concern should also be verified to ensure that conditions have not changed in the past several years. Sampling methods should also be reviewed to ensure that better methods are not available to reduce volatile losses.

Page 18, Section 4.0, paragraph 2, sentence 3: The hydraulic gradient within the till unit should be controlled to prevent till water from flowing either around or below the SVE system. Insert the words "or below" following the word "around".

Page 18, paragraph 4: There are no performance criteria associated with the monitoring of the sand and gravel wells S1, S-4B and S-5. Add a performance criteria as follows:

"If semi-annual sampling of sand and gravel monitoring wells S-1, S-4B or S-5 show increasing trends in VOC concentrations that exceed Attachment Z-1 Table 2 acceptable stream concentrations, the cause of the trends will be evaluated and additional remedial actions (if necessary) will be considered in consultation with U.S. EPA and IDEM."

Page 18, paragraph 4: The first performance criterion states that the SVE system will be reactivated if the trench water exceeds the acceptable stream concentrations. A sentence should be added at the end of this paragraph stating that if the SVE system is restarted, the Phase I Long Term Monitoring 5-year period also restarts unless otherwise agreed to by U.S. EPA and IDEM.

Page 19, third performance criterion: If the semi-annual surface water samples exceed the acceptable stream concentrations, the source of the compounds should be investigated as stated. A sentence should be added stating that further remediation will also be evaluated and proposed to U.S. EPA and IDEM.

Page 20, Section 5.0: The Phase II Long Term Monitoring proposes only annual monitoring of the Unnamed Ditch. Monitoring should be semi-annual and the PRGS influent (i.e., the trench water) and effluent. Sampling of the influent will allow for "early warning" of contamination flowing to the PRGS.

Table 2: Table 2 lists 9.4 ug/L as the stream standard for 1,2-dichloroethene (total) whereas Exhibit A Table 3-1 lists the standard as 1.85 ug/L. The issue of modifying the stream standard (based on background concentration calculations completed by the Trustees) has been discussed in the past (U.S. EPA March 1, 2001 letter to Trustees). However, the U.S. EPA and IDEM have not approved this modification based on concerns identified in the March 1 letter and should be maintained at 1.85 ug/L.

Table 2, Note 2: The note states that U.S. EPA and the Trustees have concluded that the west central surface water drainage channel from NSL represents an upstream surface water concentration. This is an important issue because 1,2-dichloroethene has been detected in the Unnamed ditch at concentrations exceeding 1.85 ug/L. If there are two tributaries to the

down-gradient surface water sampling location, both tributaries should be sampled immediately upstream from their confluence to differentiate between the possible sources of the down-gradient surface water concentrations at SW-2. Concentrations from till water at T-6 (or other areas) could contribute to concentrations in the Unnamed Ditch upstream from the NSL discharge confluence.

Schedule: While the specific schedule tasks and their order seem reasonable, the durations appear too long in some cases. The overall schedule could be shortened considerably. The following durations for the various activities seem more typical based upon past experience:

- 1) **Attachment Z-1** – 1 month from Trustee meeting with Agency until Agency approval.
- 2) **100% Design Report** – 6 months from initiation to Agency approval.
- 3) **Bid Specification and Contractor Procurement** – 2 months
- 4) **Attachment Z-1 Construction** – 6 months
- 5) **Construction Completion Report** – 3 months.

This would put the overall duration through Agency approval of the construction completion report at about 1.5 years versus the almost 3 years shown in the preliminary schedule presented.

Appendix A, Soil Vapor and Water Treatment System: A footnote at the bottom of page A-4 indicates that groundwater collected at Third Site will be sent to the water treatment plant at Envirochem. However, the trustees for ECC and Third Site have not yet obtained U.S. EPA and IDEM approval for this activity. Further, the Trustees have expressed concern about the combining of the sites to facilitate this process.

Appendix C, Thin Barrier Curtain Wall: Page C-1 states the following: "It is presently contemplated that the thin barrier curtain wall will be installed using the Vibrated Beam Method, although conventional slurry wall trench construction methods will be considered." Conventional trench construction methods may not be capable of installing a 4-inch wide barrier wall. The reference to conventional trench methods should be deleted, unless the construction of a thicker wall is also contemplated.

Appendix C-3, Thin Barrier Curtain Wall: This figure indicates that the barrier wall will be keyed into the sand and gravel unit. Please explain why the wall being keyed into this unit. Environ has previously maintained that this unit is under artesian conditions. If the wall breaches this unit the upward flowing groundwater may interfere with the slurry injection. If the sand and gravel unit is not artesian, the slurry may flow into the unit and prevent establishment of the proper thickness in the wall.